

## Carbon Dioxide Collection and Pressurization Technology, Phase II

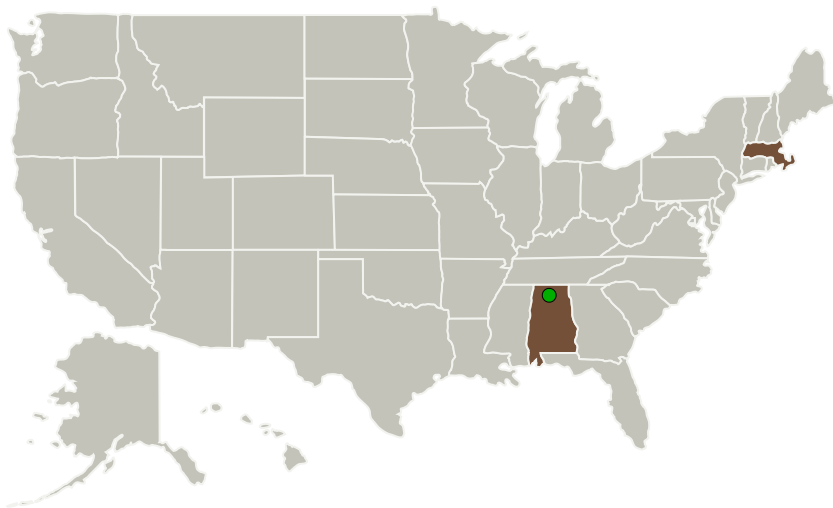
Completed Technology Project (2015 - 2017)




## Project Introduction

In Situ Resource Utilization (ISRU) is a key technology required to enable missions to the Moon and Mars. The Martian atmosphere consists of 95% carbon dioxide which can be used in (ISRU) processes to synthesize propellant and life support consumables. Reactive Innovation proposes to develop a lightweight electrochemical reactor to collect and pressurize CO<sub>2</sub> from the Martian atmosphere. The Phase I successfully demonstrated collection and pressurization of CO<sub>2</sub> from pure and dilute gas streams. In the proposed Phase II program, we will continue to optimize components and scale up the technology to meet the needs of NASA's ISRU processing applications.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Reactive Innovations, LLC	Lead Organization	Industry	Westford, Massachusetts
 Marshall Space Flight Center (MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama



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## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

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### Primary U.S. Work Locations

Alabama

Massachusetts

### Project Transitions



**May 2015:** Project Start



**May 2017:** Closed out

#### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137702>)

### Images



#### Briefing Chart

Carbon Dioxide Collection and Pressurization Technology Briefing Chart

(<https://techport.nasa.gov/image/131679>)

### Organizational Responsibility

#### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

#### Lead Organization:

Reactive Innovations, LLC

#### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

### Project Management

#### Program Director:

Jason L Kessler

#### Program Manager:

Carlos Torrez

#### Principal Investigator:

Karen Jayne

#### Co-Investigator:

Karen Jayne

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### Technology Maturity (TRL)

Start: 4  
Current: 6  
Estimated End: 6



### Technology Areas

#### Primary:

- TX07 Exploration Destination Systems
  - TX07.1 In-Situ Resource Utilization
    - TX07.1.3 Resource Processing for Production of Mission Consumables

### Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System